

TABLE 1  
LENGTH

DART LONG LINE PART NUMBER CODE	DESCRIPTION
DALL-#-#-#-#	REPLACE FIRST # WITH LONG LINE TOTAL LENGTH IN FEET (MAX 200)

TABLE 3  
OPTIONS

DART LONG LINE PART NUMBER CODE	OPTION DESCRIPTION
DALL-#-#-A-#	WITH PEAR SHAPED LIFTING RING END AND PROTECTIVE JACKETS
DALL-#-#-B-#	WITHOUT PEAR SHAPED LIFTING RING END AND PROTECTIVE JACKETS
DALL-#-#-C-F	WITH PEAR SHAPED LIFTING RING END, WITHOUT PROTECTIVE JACKETS AND WITHOUT ELECTRICAL WIRE
DALL-#-#-D-F	WITHOUT PEAR SHAPED LIFTING RING END, WITHOUT PROTECTIVE JACKETS AND WITHOUT ELECTRICAL WIRE

TABLE 2  
CAPACITY

DART LONG LINE PART NUMBER CODE	CAPACITY (LBS)
DALL-#-A-#-#	2500
DALL-#-B-#-#	3000
DALL-#-C-#-#	4400
DALL-#-D-#-#	5400
DALL-#-E-#-#	7300
DALL-#-F-#-#	9700
DALL-#-G-#-#	13 200

TABLE 4  
ELECTRICAL

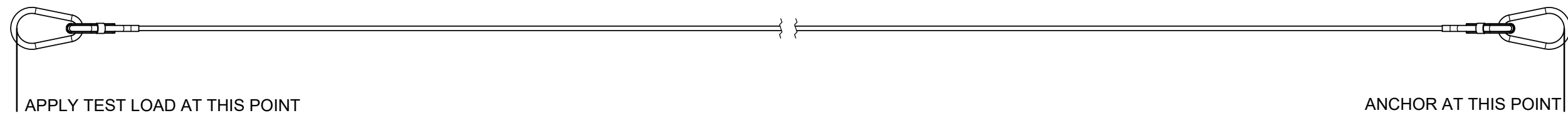
DART LONG LINE PART NUMBER CODE	ELECTRICAL WIRE DESCRIPTION
DALL-#-#-#-A	3 CONDUCTOR 14 GA
DALL-#-#-#-B	3 CONDUCTOR 12 GA
DALL-#-#-#-C	4 CONDUCTOR 14 GA
DALL-#-#-#-D	6 CONDUCTOR 16 GA
DALL-#-#-#-E	8 CONDUCTOR 16 GA
DALL-#-#-#-F	NO ELECTRICAL
DALL-#-#-#-G	2 CONDUCTOR 14 GA
DALL-#-#-#-H	2 CONDUCTOR 12 GA

DALL - # - # - # - #  
PART NUMBER = DALL- (LENGTH) - (CAPACITY P/N CODE) - (OPTION P/N CODE) - (ELECTRICAL P/N CODE)  
EXAMPLE: DALL-100-A-A-A = DART LONG LINE, 100 FEET LONG, 2500 LBS CAPACITY, WITH LIFTING RING AND 3 CONDUCTOR 14 GAUGE WIRE AND BAG

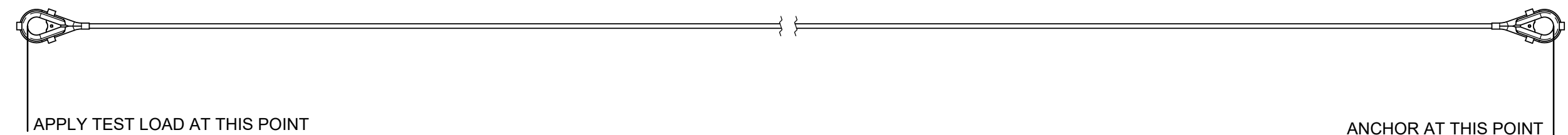
E	UPDATE DIMENSION'S -9/-12/-13 WAS 48.00 is 96.00, -14 ADDED NOTE 13, UPDATE DIMENSION.	20-201	SAD
D	ADDED DALL-##-#-G, DALL-##-#-H, DALL-##-C-F AND DALL-##-D-F. ADDED ITEMS -22, -23, 25, 26 & 28. UPDATED NOTE 6. ADDED NOTES 7, 8 & 9. UPDATED TABLE 3 (OPTIONS) AND TABLE 4 (ELECTRICAL)  -1 UPDATED NOTES 6 & 8. ADDED NOTE 11. REMOVED WHITE FABRIC LABEL NOTE  -3 UPDATED TABLE 7 (ROPE MATERIAL)  -5 REMOVED DIM. 1.0. ADDED DIM B. UPDATED TABLE 8 (THIMBLE ASSY AND END HARDWARE)  -6 REMOVED DIM 0.8. ADDED DIM FOR LENGTH. UPDATED TABLE 9 (RETAINER)  -8 REMOVED DIM. 1.35 POCKET WIRE  -13 UPDATED TABLE 10 (ORANGE JACKET)  -14 ADDED DIM 2.4 REF  -18 MATERIAL IS WEBBING NYLON BLACK, MIL-W-17337F, CL1, 1-1/2" WAS WEBBING NYLON BLACK, MIL-W-17337F, CL1, 1-1/2", NO FR TREAT  -20 UPDATED TABLE 11 (ELECTRICAL WIRE)	19-720	MBB
C	TULMAR COMMENTS INCORPORATED	18-778	ML
B	TULMAR COMMENTS INCORPORATED, THIMBLE MATERIAL IS NOW STAINLESS, ELECTRICAL WIRE TABLE UPDATED, 15 700 LB LONGLINE REMOVED	18-770	VM
A	NEW ISSUE	18-585	VM
REV.	DESCRIPTION	ECN #	BY
DESIGN	MBB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	
MFG. APPR.	SH	DALL-##-##-##	
APPROVED	SAD	REV. E	
DATE 5/20/2021		SHEET 1 OF 25	
		TITLE	
		DART LONG LINE	
		SCALE	
		NTS	
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**DALL-##-A-#-2 ROPE ASSY**  
DART LONGLINE ASSEMBLY WITH PEAR SHAPED LIFTING RING OPTION



**DALL-##-B-#-2 ROPE ASSY**  
DART LONGLINE ASSEMBLY WITHOUT PEAR SHAPED LIFTING RING OPTION

<b>TABLE 5</b> <b>ROPE LOAD TEST</b>	
<b>DART LONG LINE</b> <b>PART NUMBER</b> <b>CODE</b>	<b>TEST LOAD</b> <b>(LBS)</b>
DALL-#-A-##	7500
DALL-#-B-##	9000
DALL-#-C-##	13 200
DALL-#-D-##	16 200
DALL-#-E-##	21 900
DALL-#-F-##	29 100
DALL-#-G-##	39 600

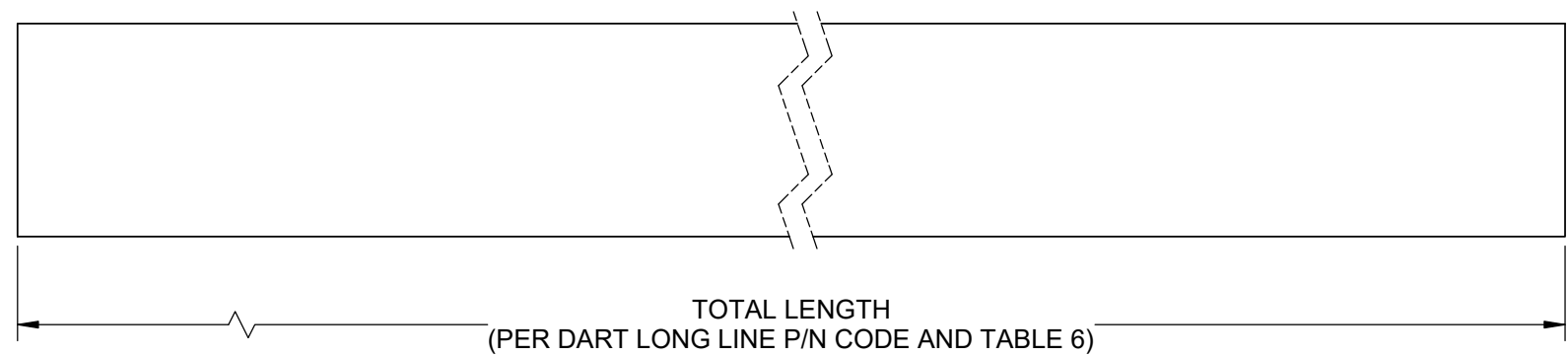
NOTES:

- 1) MATERIAL: N/A  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"

- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) IDENTIFICATION: N/A
- 7) THE DALL-#-#-#-2 MUST BE LOAD TESTED TO 3X THE WORKING LOAD (PER TABLE 5) FOR 5 CONTINUOUS MINUTES.  
INSPECT ROPE AFTER LOAD TEST TO ENSURE THERE ARE NO BROKEN OR DAMAGED STRANDS.  
FRAYING AND DAMAGE TO THE ROPE IS NOT ACCEPTABLE. INSPECT THIMBLE TO ENSURE THERE IS NO DISTORTION OR DAMAGED WELDS
- 8) CARE MUST BE TAKEN TO PREVENT DAMAGE DURING TESTING
- 9) TEST LOADS MUST BE DOCUMENTED

DESIGN	MBB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART # DALL-##-##-##	REV. E
MFG. APPR.	SH		SHEET 4 OF 25
APPROVED	SAD	TITLE DART LONG LINE	SCALE NTS
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DART LONG LINE PART NUMBER CODE	MATERIAL PART NUMBER	DESCRIPTION
DALL-#-A-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 3/8"	$\phi$ 3/8" 12 STRAND ROPE, 17 550 LBS MIN TENSILE STRENGTH
DALL-#-B-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 7/16"	$\phi$ 7/16" 12 STRAND ROPE, 21 150 LBS MIN TENSILE STRENGTH
DALL-#-C-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 1/2"	$\phi$ 1/2" 12 STRAND ROPE, 30 600 LBS MIN TENSILE STRENGTH
DALL-#-D-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 9/16"	$\phi$ 9/16" 12 STRAND ROPE, 37 080 LBS MIN TENSILE STRENGTH
DALL-#-E-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 5/8"	$\phi$ 5/8" 12 STRAND ROPE, 47 250 LBS MIN TENSILE STRENGTH
DALL-#-F-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 3/4"	$\phi$ 3/4" 12 STRAND ROPE, 59 400 LBS MIN TENSILE STRENGTH
DALL-#-G-#-#	SUPREEMX-12™ DYNEEMA® X $\phi$ 7/8"	$\phi$ 7/8" 12 STRAND ROPE, 85 500 LBS MIN TENSILE STRENGTH

7

7) NO ROPE COLOR REQUIREMENTS


DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	DALL-##-##	SHEET 6 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		DART LONG LINE	NTS 
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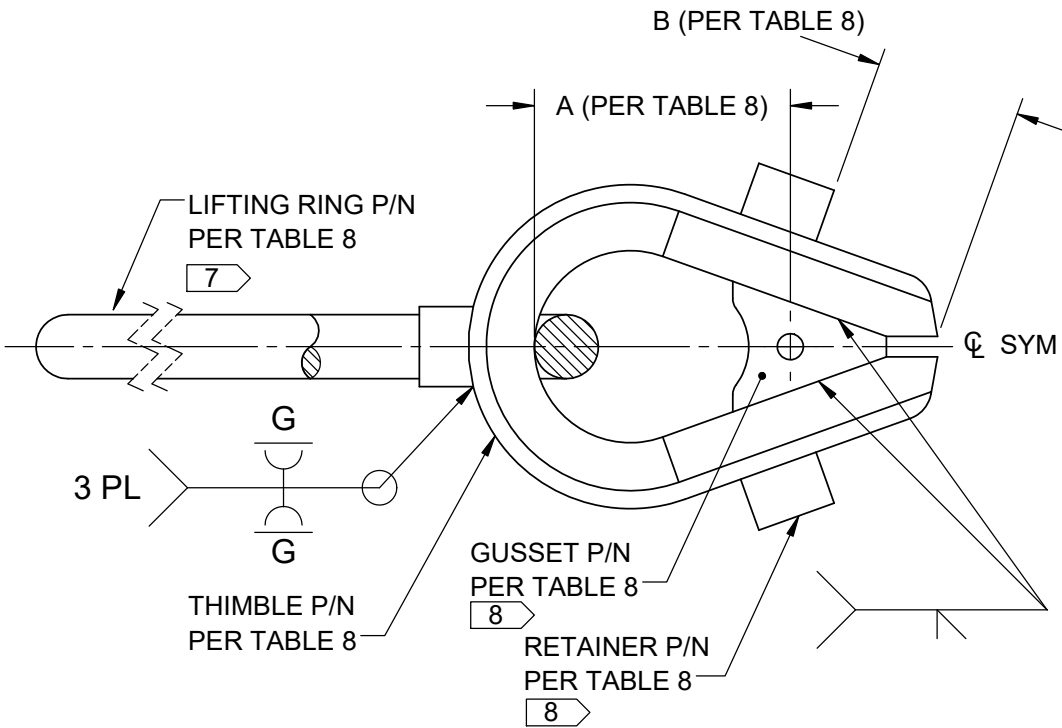


TABLE 8  
THIMBLE ASSY AND END HARDWARE  
(TO USE TABLE SELECT APPROPRIATE DART LONG LINE PART NUMBER CODE IN COLUMN ONE THEN MANUFACTURE THIMBLE ASSY USING ITEMS IN THE SAME ROW)

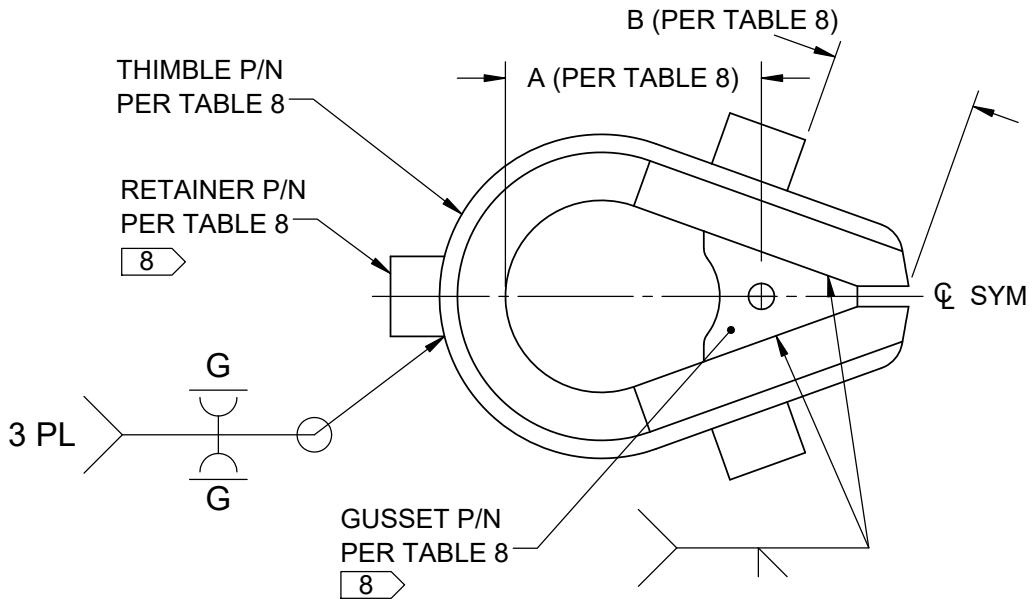
ASSEMBLY INFO								
DART LONG LINE PART NUMBER CODE	THIMBLE ASSY PART NUMBER	DESCRIPTION	RETAINER PART NUMBER	GUSSET PART NUMBER	PURCHASE THIMBLE PART NUMBER (McMASTER CARR)	PURCHASE LIFTING RING PART NUMBER (McMASTER CARR)	DIMENSION A ±0.05"	DIMENSION B ±0.13"
DALL-#-A-A-# DALL-#-A-C-F	DALL-#-A-A-#5	THIMBLE WITH 1/2" PEAR RING	DALL-#-A-A-#6	DALL-#-#-#-#7	(9/16") 3495T41 OR EQUIVALENT	3570T34 OR EQUIVALENT	2.00	1.10
DALL-#-B-A-# DALL-#-B-C-F	DALL-#-A-A-#5	THIMBLE WITH 1/2" PEAR RING	DALL-#-A-A-#6	DALL-#-#-#-#7	(9/16") 3495T41 OR EQUIVALENT	3570T34 OR EQUIVALENT	2.00	1.10
DALL-#-C-A-# DALL-#-C-C-F	DALL-#-C-A-#5	THIMBLE WITH 3/4" PEAR RING	DALL-#-C-A-#6	DALL-#-#-#-#23	(5/8") 3495T51 OR EQUIVALENT	3570T35 OR EQUIVALENT	2.60	1.20
DALL-#-D-A-# DALL-#-D-C-F	DALL-#-C-A-#5	THIMBLE WITH 3/4" PEAR RING	DALL-#-C-A-#6	DALL-#-#-#-#23	(5/8") 3495T51 OR EQUIVALENT	3570T35 OR EQUIVALENT	2.60	1.20
DALL-#-E-A-# DALL-#-E-C-F	DALL-#-E-A-#5	THIMBLE WITH 3/4" PEAR RING	DALL-#-E-A-#6	DALL-#-#-#-#23	(3/4") 3495T49 OR EQUIVALENT	3570T35 OR EQUIVALENT	3.00	1.30
DALL-#-F-A-# DALL-#-F-C-F	DALL-#-F-A-#5	THIMBLE WITH 3/4" PEAR RING	DALL-#-F-A-#6	DALL-#-#-#-#23	(7/8") 3495T42 OR EQUIVALENT	3570T35 OR EQUIVALENT	3.40	1.40
DALL-#-G-A-# DALL-#-G-C-F	DALL-#-G-A-#5	THIMBLE WITH 3/4" PEAR RING	DALL-#-F-A-#6	DALL-#-#-#-#22	(1") 3495T43 OR EQUIVALENT	3570T35 OR EQUIVALENT	3.50	1.50
DALL-#-A-B-# DALL-#-A-D-F	DALL-#-A-B-#5	THIMBLE ONLY	DALL-#-A-A-#6	DALL-#-#-#-#7	(9/16") 3495T41 OR EQUIVALENT	N/A	2.00	1.10
DALL-#-B-B-# DALL-#-B-D-F	DALL-#-A-B-#5	THIMBLE ONLY	DALL-#-A-A-#6	DALL-#-#-#-#7	(9/16") 3495T41 OR EQUIVALENT	N/A	2.00	1.10
DALL-#-C-B-# DALL-#-C-D-F	DALL-#-C-B-#5	THIMBLE ONLY	DALL-#-C-A-#6	DALL-#-#-#-#23	(5/8") 3495T51 OR EQUIVALENT	N/A	2.60	1.20
DALL-#-D-B-# DALL-#-D-D-F	DALL-#-C-B-#5	THIMBLE ONLY	DALL-#-C-A-#6	DALL-#-#-#-#23	(5/8") 3495T51 OR EQUIVALENT	N/A	2.60	1.20
DALL-#-E-B-# DALL-#-E-D-F	DALL-#-E-B-#5	THIMBLE ONLY	DALL-#-E-A-#6	DALL-#-#-#-#23	(3/4") 3495T49 OR EQUIVALENT	N/A	3.00	1.30
DALL-#-F-B-# DALL-#-F-D-F	DALL-#-F-B-#5	THIMBLE ONLY	DALL-#-F-A-#6	DALL-#-#-#-#23	(7/8") 3495T42 OR EQUIVALENT	N/A	3.40	1.40
DALL-#-G-B-# DALL-#-G-D-F	DALL-#-G-B-#5	THIMBLE ONLY	DALL-#-F-A-#6	DALL-#-#-#-#22	(1") 3495T43 OR EQUIVALENT	N/A	3.50	1.50

NOTES:

- 1) MATERIAL: N/A
- 2) HEAT TREAT: N/A
- 3) FINISH: N/A
- 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) REMOVE ALL SHARP EDGES, BURRS, AND WELD SPATTERS
- 7) SPREAD THE THIMBLE APART AS NECESSARY AT THE OPENING IN ORDER TO INSTALL THE LIFTING RING, BEND BACK INTO POSITION ONCE THE LIFTING RING IS INSTALLED
- 8) TRIM/GRIND THE DALL-#-#-#-#6 RETAINER AND THE DALL-#-#-#-#7 OR DALL-#-#-#-#22 OR DALL-#-#-#-#23 GUSSET TO MATCH THIMBLE PROFILE
- 9) IT IS ACCEPTABLE TO BEND THE THIMBLE IN / OUT TO PERMIT INSTALLATION OF THE DALL-#-#-#-#7 OR DALL-#-#-#-#22 OR DALL-#-#-#-#23 GUSSET
- 10) IT IS ACCEPTABLE TO BEND THE RETAINER IN / OUT TO PERMIT TO MATCH THIMBLE PROFILE



**DALL-#-#-A-#5 THIMBLE ASSY**  
DART LONGLINE ASSEMBLY WITH PEAR SHAPED LIFTING RING OPTION  
9 10



**DALL-#-#-B-#5 THIMBLE ASSY**  
DART LONGLINE ASSEMBLY WITHOUT PEAR SHAPED LIFTING RING OPTION  
9 10

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#-#</b>	SHEET 7 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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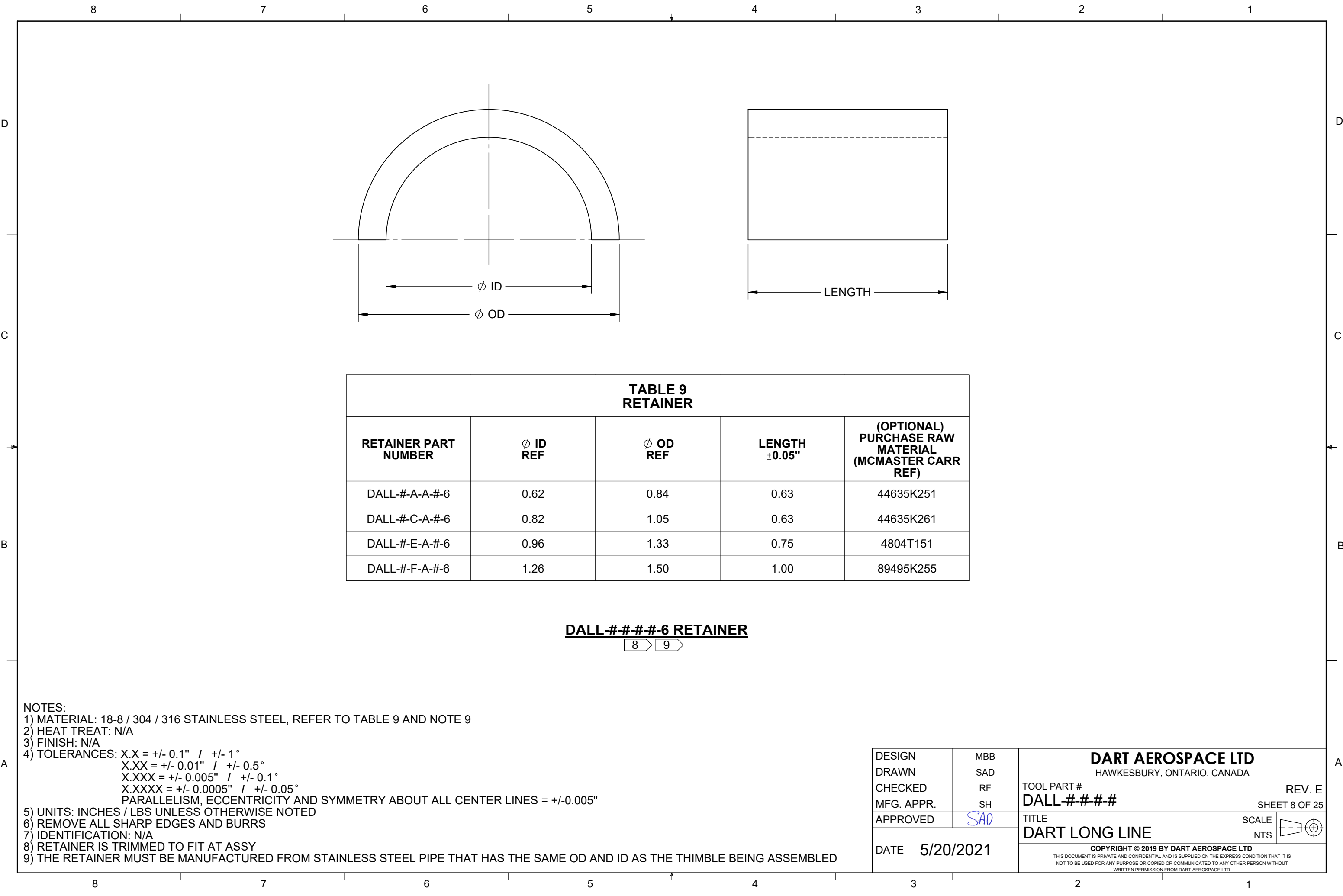


TABLE 9 RETAINER				
RETAINER PART NUMBER	Ø ID REF	Ø OD REF	LENGTH ±0.05"	(OPTIONAL) PURCHASE RAW MATERIAL (MCMaster CARR REF)
DALL-#-A-A-#-6	0.62	0.84	0.63	44635K251
DALL-#-C-A-#-6	0.82	1.05	0.63	44635K261
DALL-#-E-A-#-6	0.96	1.33	0.75	4804T151
DALL-#-F-A-#-6	1.26	1.50	1.00	89495K255

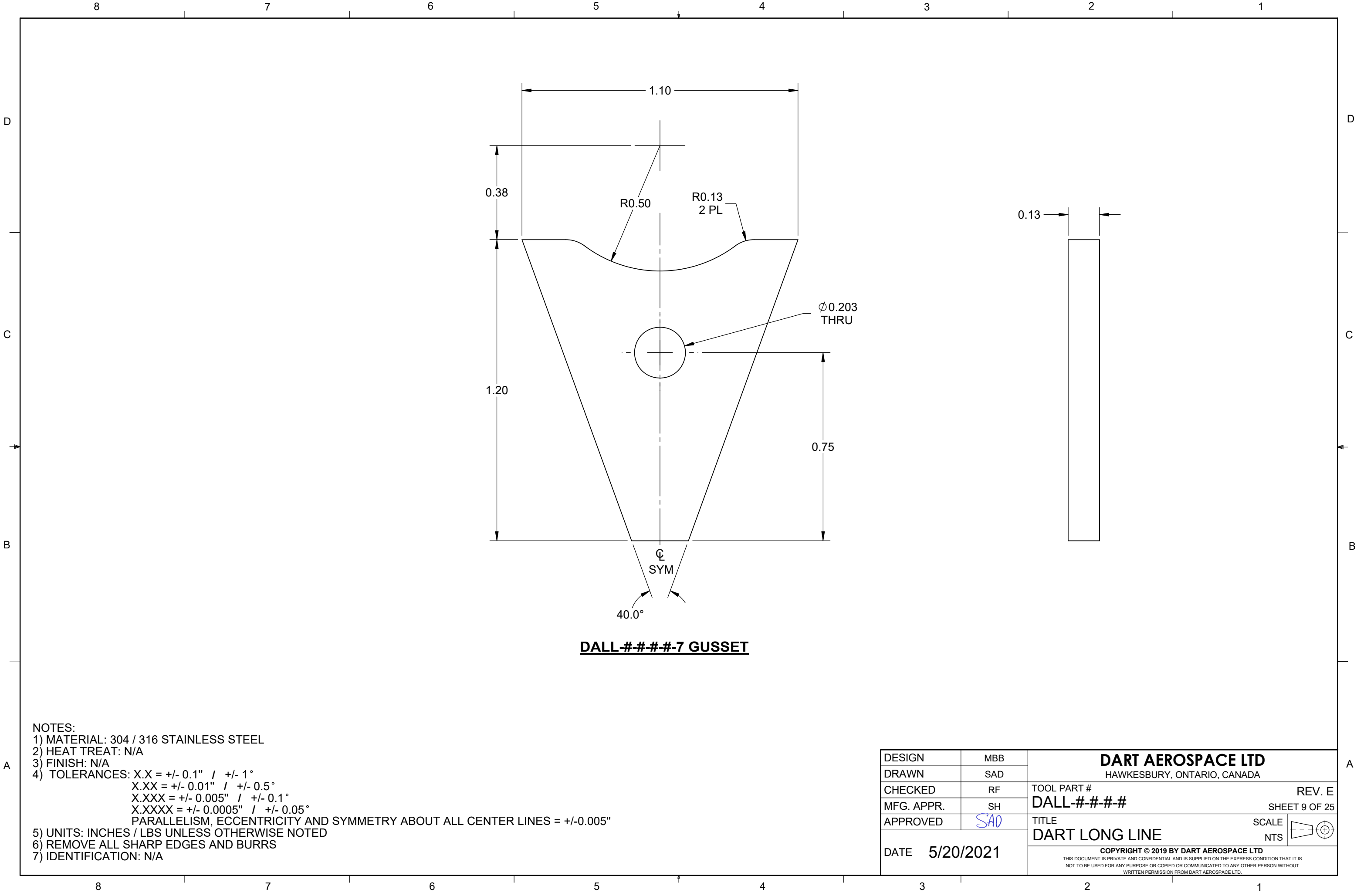
DALL-#-#-#-6 RETAINER

8 9

- NOTES:
- 1) MATERIAL: 18-8 / 304 / 316 STAINLESS STEEL, REFER TO TABLE 9 AND NOTE 9
- 2) HEAT TREAT: N/A
- 3) FINISH: N/A
- 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"
- 5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED
- 6) REMOVE ALL SHARP EDGES AND BURRS
- 7) IDENTIFICATION: N/A
- 8) RETAINER IS TRIMMED TO FIT AT ASSY
- 9) THE RETAINER MUST BE MANUFACTURED FROM STAINLESS STEEL PIPE THAT HAS THE SAME OD AND ID AS THE THIMBLE BEING ASSEMBLED

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 8 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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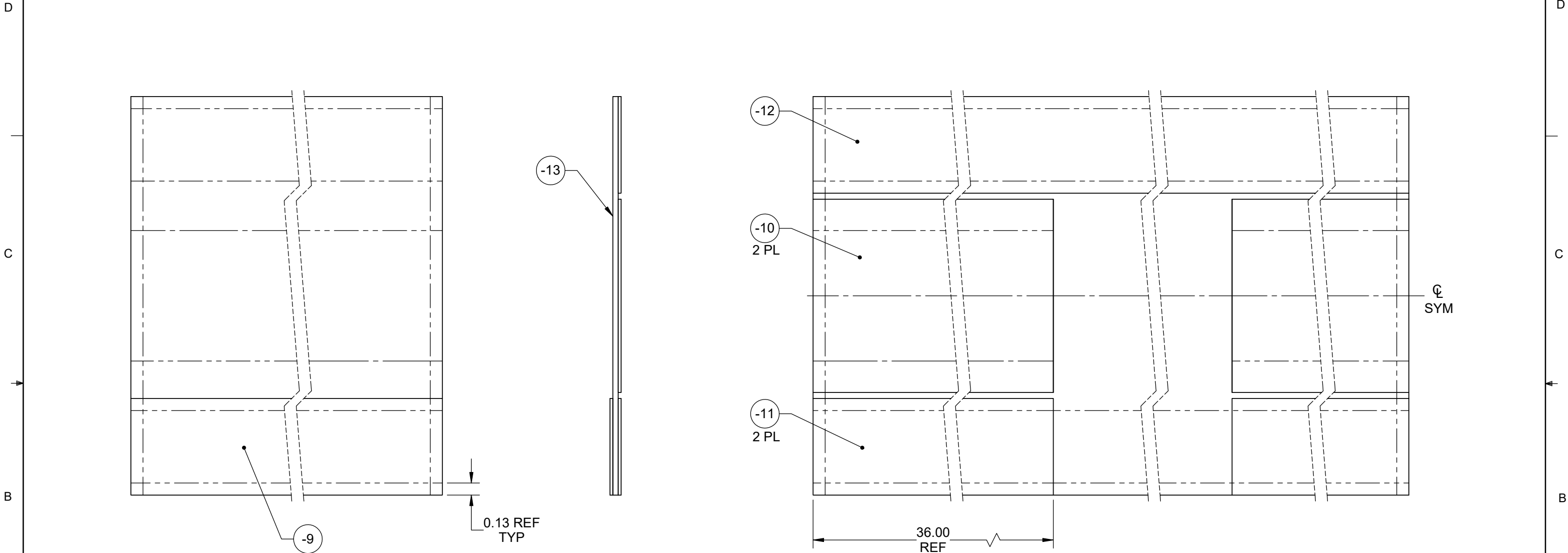




NOTES:  
1) MATERIAL: 304 / 316 STAINLESS STEEL  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) REMOVE ALL SHARP EDGES AND BURRS  
7) IDENTIFICATION: N/A

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-####-</b>	SHEET 9 OF 25
APPROVED	<i>SAD</i>	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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ITEM #	QTY	PART #	PART TITLE
-9	1	DALL-#-#-#-9	FASTENER LOOP
-10	2	DALL-#-#-#-10	FASTENER HOOK
-11	2	DALL-#-#-#-11	FASTENER HOOK
-12	1	DALL-#-#-#-12	FASTENER HOOK
-13	1	DALL-#-#-#-13	ORANGE JACKET

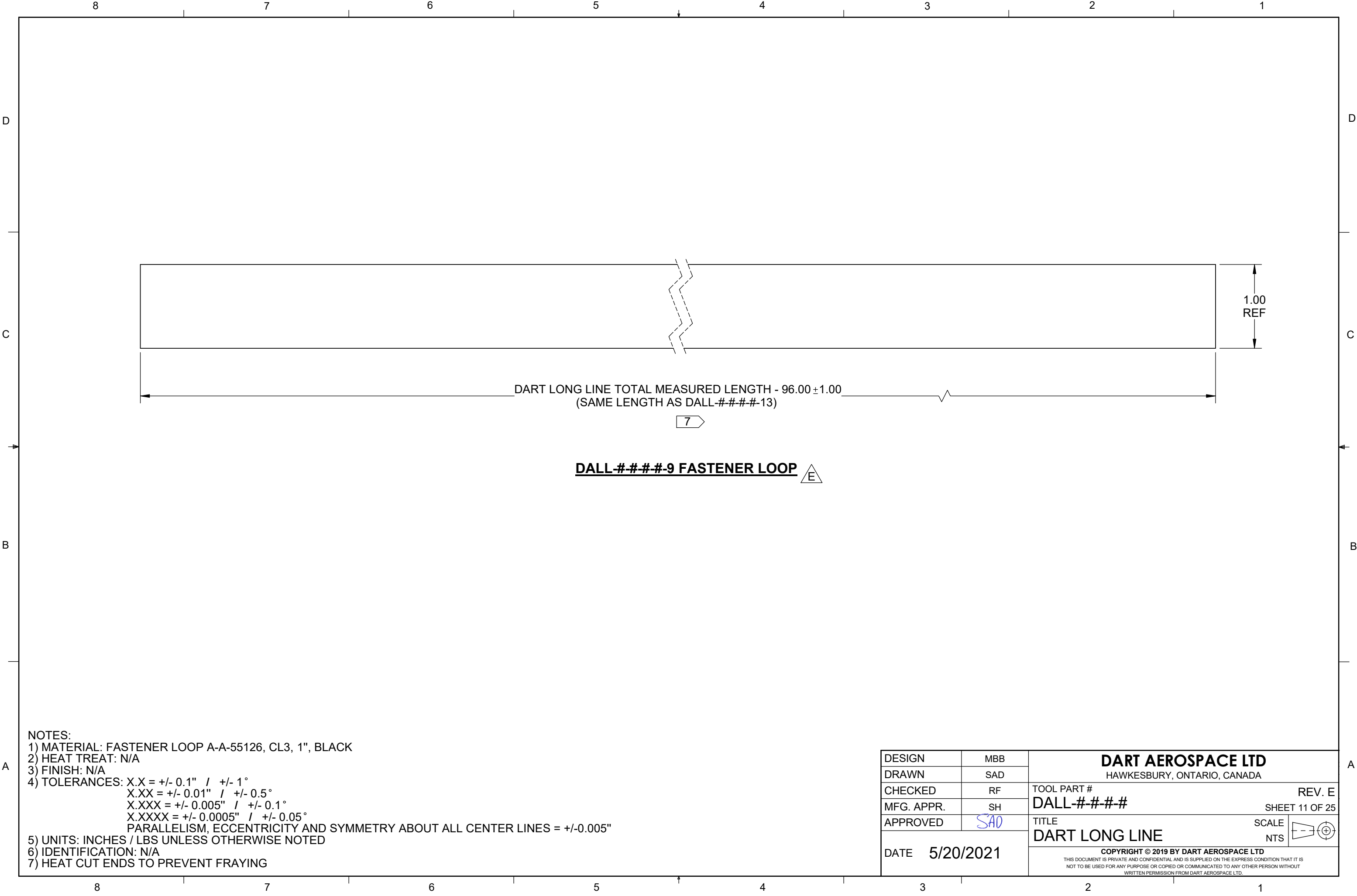


**DALL-#-#-#-8 ORANGE JACKET ASSY**

8 9 10

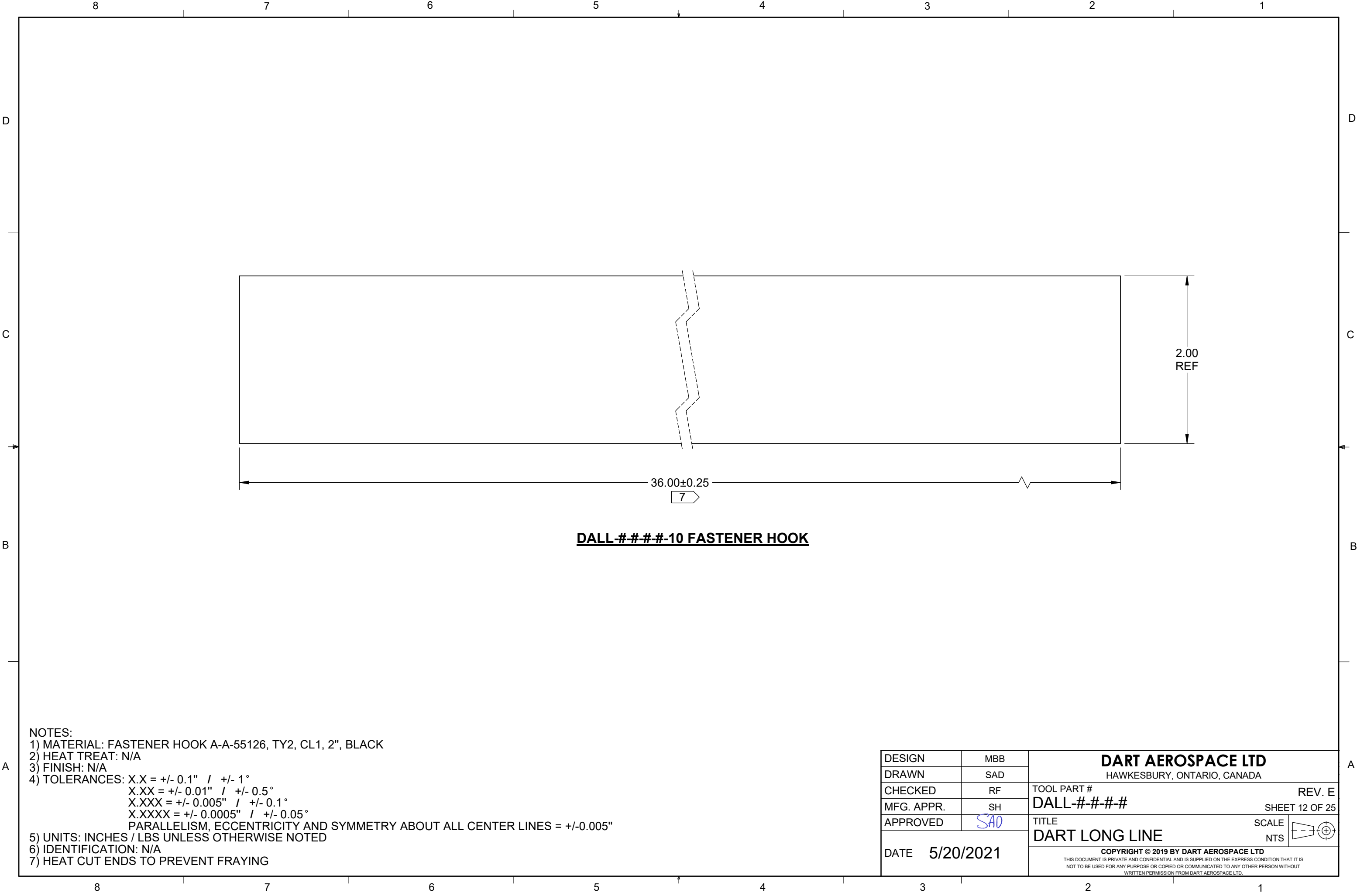
- NOTES:
- 1) MATERIAL: N/A
  - 2) HEAT TREAT: N/A
  - 3) FINISH: N/A
  - 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"
  - 5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED
  - 6) IDENTIFICATION: N/A
  - 7) SEW ITEMS TOGETHER AS SHOWN
  - 8) STITCHING TO BE IAW ASTM D6193, TYPE 301, 6-10 STITCHES PER INCH, MINIMUM 0.5" BACKSTITCH, 0.5" SEAM ALLOWANCE, 0.5" TURNBACKS WHERE SHOWN, 0.13 ±0.10" FROM EDGE, ADDITIONAL ROWS OF SEWING ARE ACCEPTABLE TO ASSIST IN ASSEMBLY
  - 9) PHANTOM LINES REPRESENT STITCHING
  - 10) FASTNER LOOP/HOOK MUST BE ALIGNED WITH END OF ORANGE JACKET BEFORE SEWING

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 10 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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NOTES:  
1) MATERIAL: FASTENER LOOP A-A-55126, CL3, 1", BLACK  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) HEAT CUT ENDS TO PREVENT FRAYING

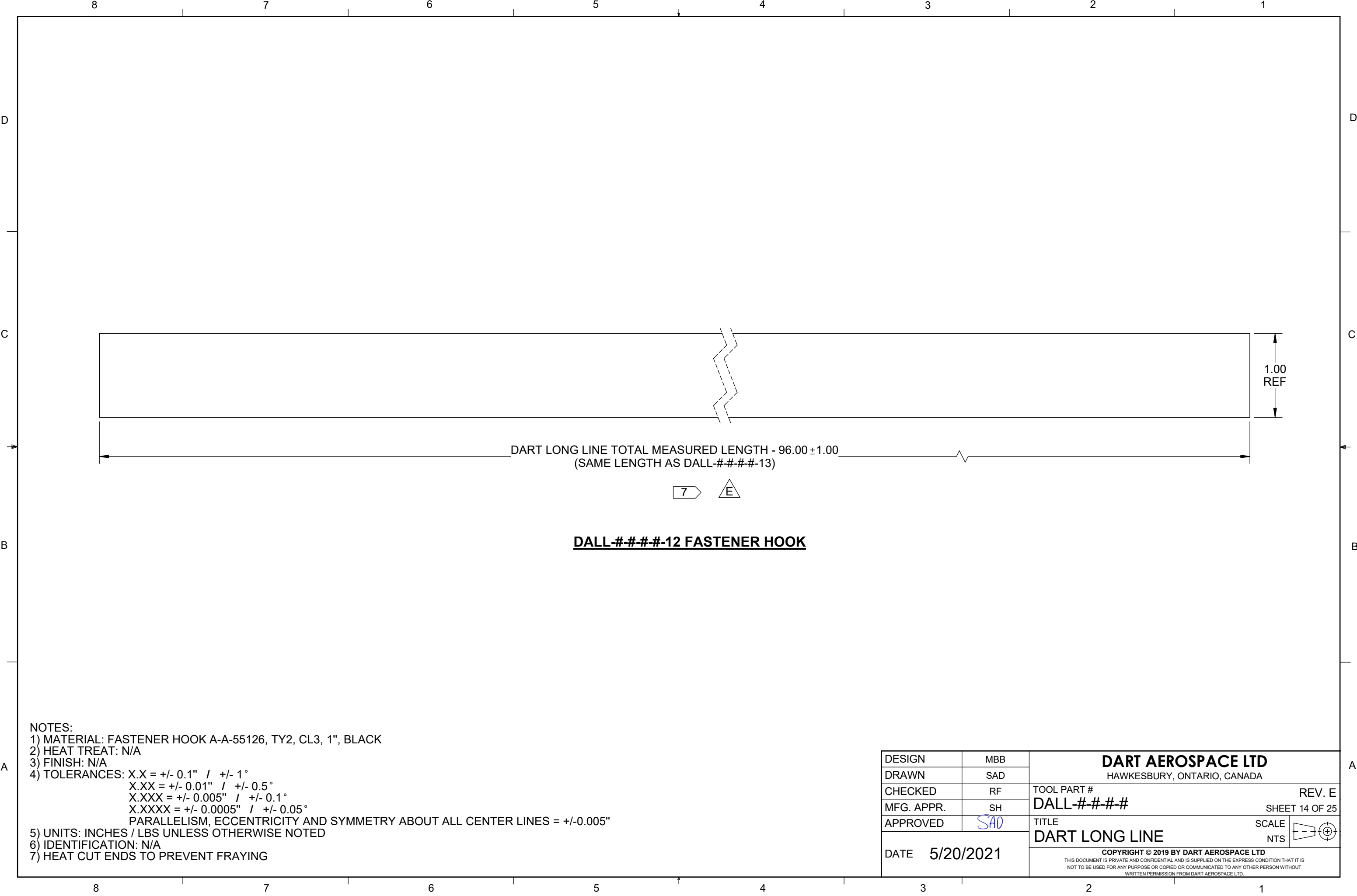
DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-####-</b>	SHEET 11 OF 25
APPROVED	<i>SAD</i>	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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NOTES:  
1) MATERIAL: FASTENER HOOK A-A-55126, TY2, CL1, 2", BLACK  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
                  X.XX = +/- 0.01" / +/- 0.5°  
                  X.XXX = +/- 0.005" / +/- 0.1°  
                  X.XXXX = +/- 0.0005" / +/- 0.05°  
                  PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) HEAT CUT ENDS TO PREVENT FRAYING

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 12 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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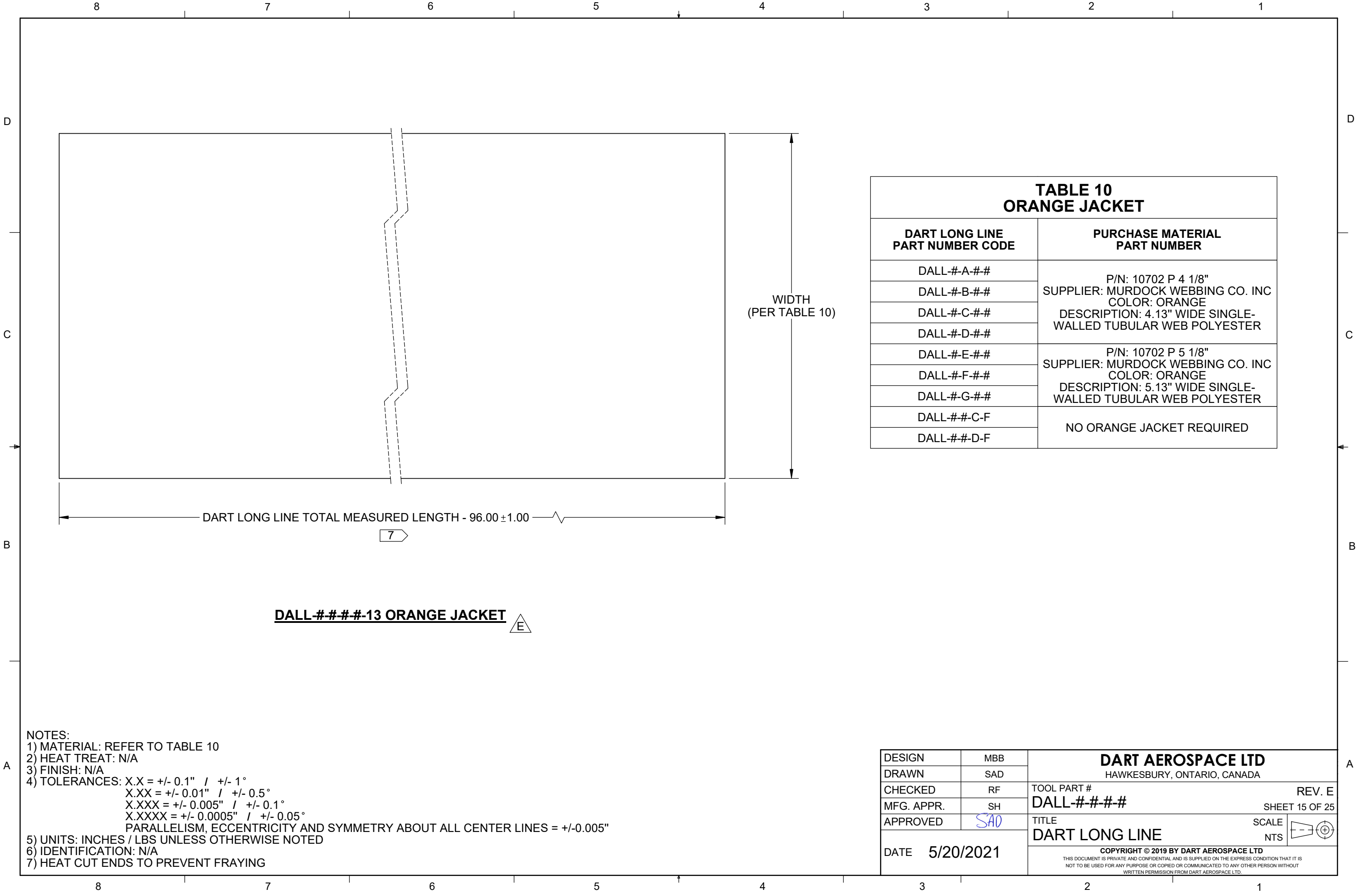




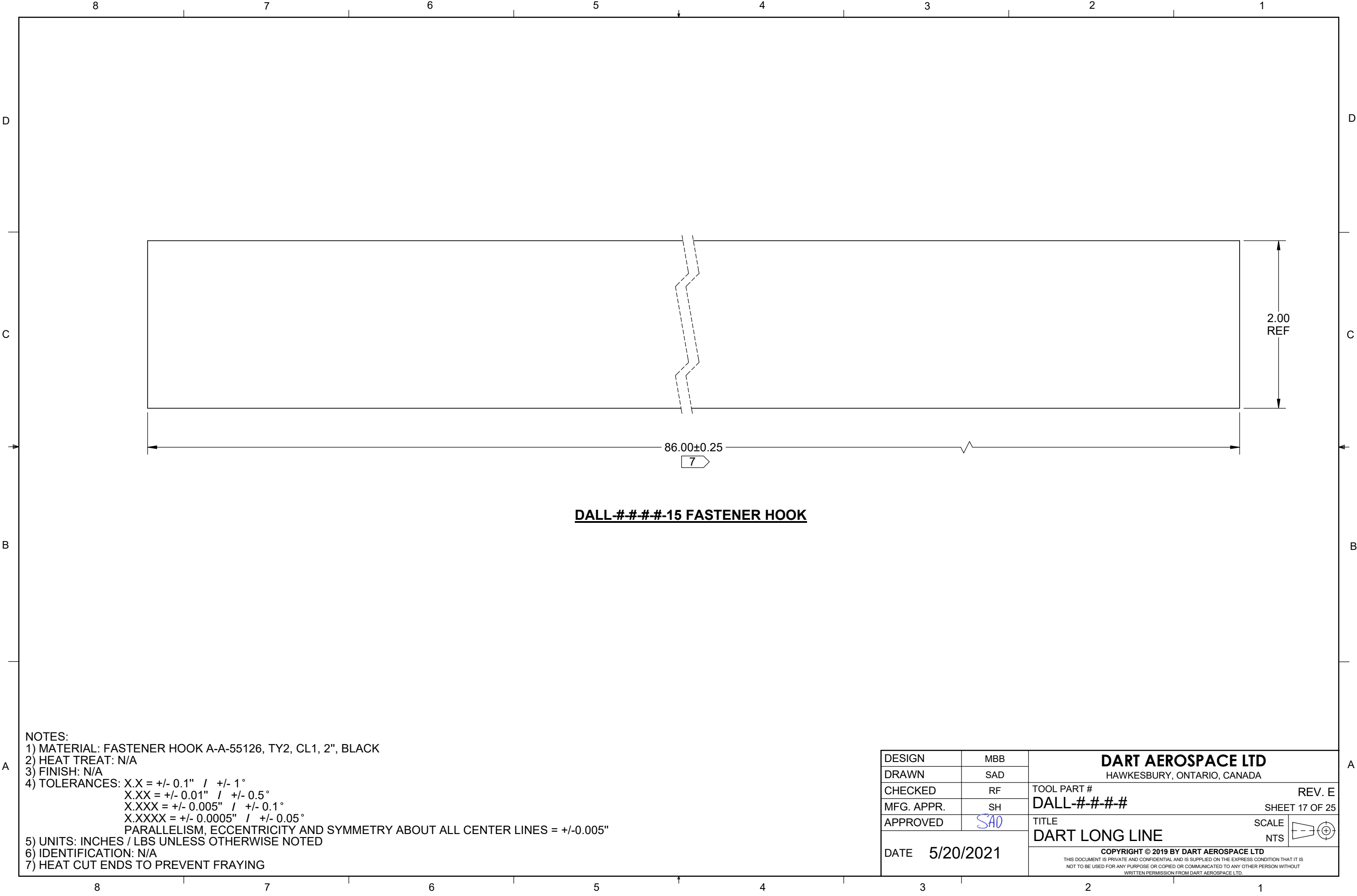
NOTES:  
1) MATERIAL: FASTENER HOOK A-A-55126, TY2, CL3, 1", BLACK  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
                  X.XX = +/- 0.01" / +/- 0.5°  
                  X.XXX = +/- 0.005" / +/- 0.1°  
                  X.XXXX = +/- 0.0005" / +/- 0.05°  
                  PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) HEAT CUT ENDS TO PREVENT FRAYING

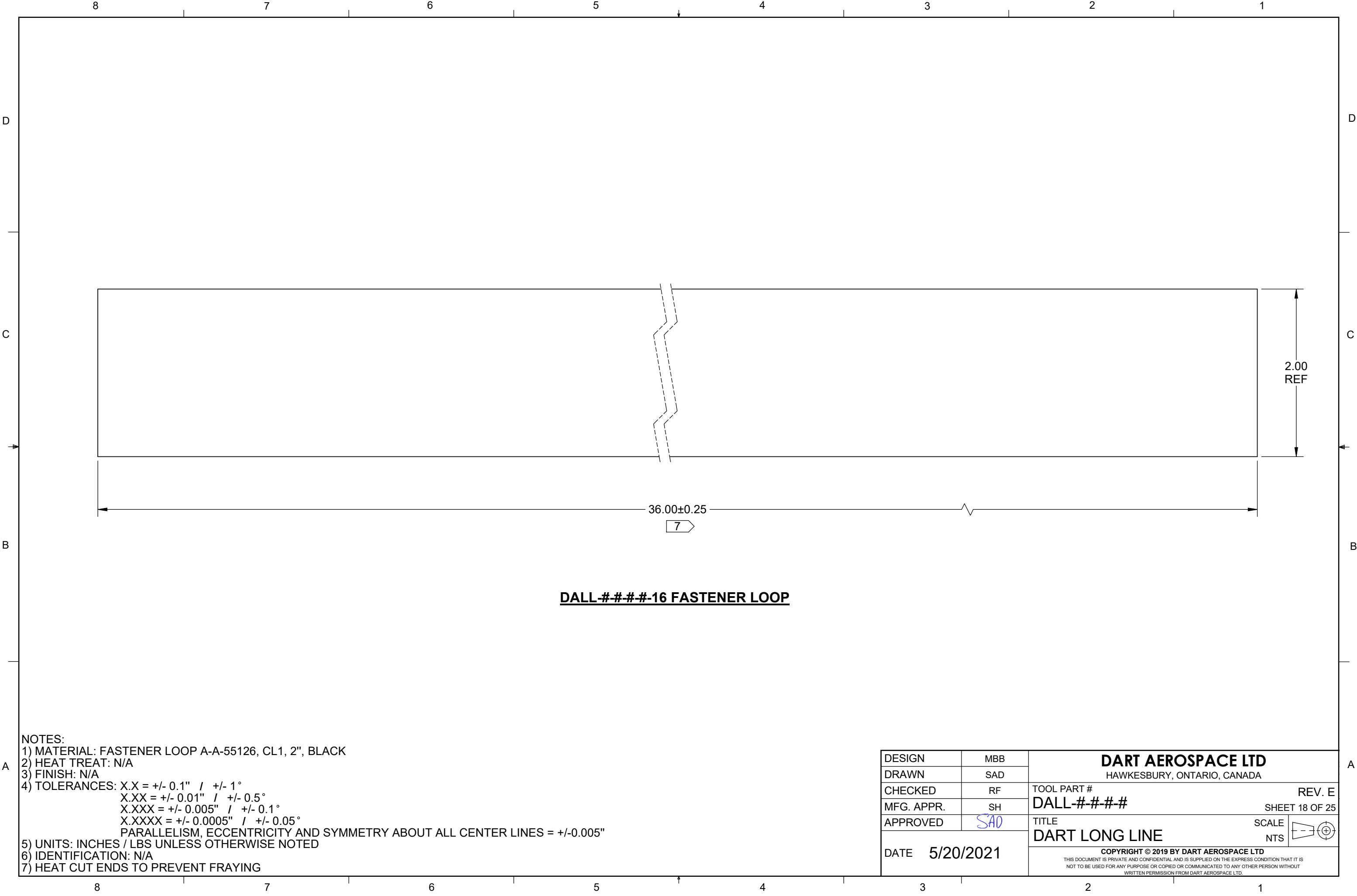
DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART # <b>DALL-####</b>	REV. E
MFG. APPR.	SH	SHEET 14 OF 25	
APPROVED	SAD	TITLE <b>DART LONG LINE</b>	SCALE NTS
DATE 5/20/2021		COPYRIGHT © 2019 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

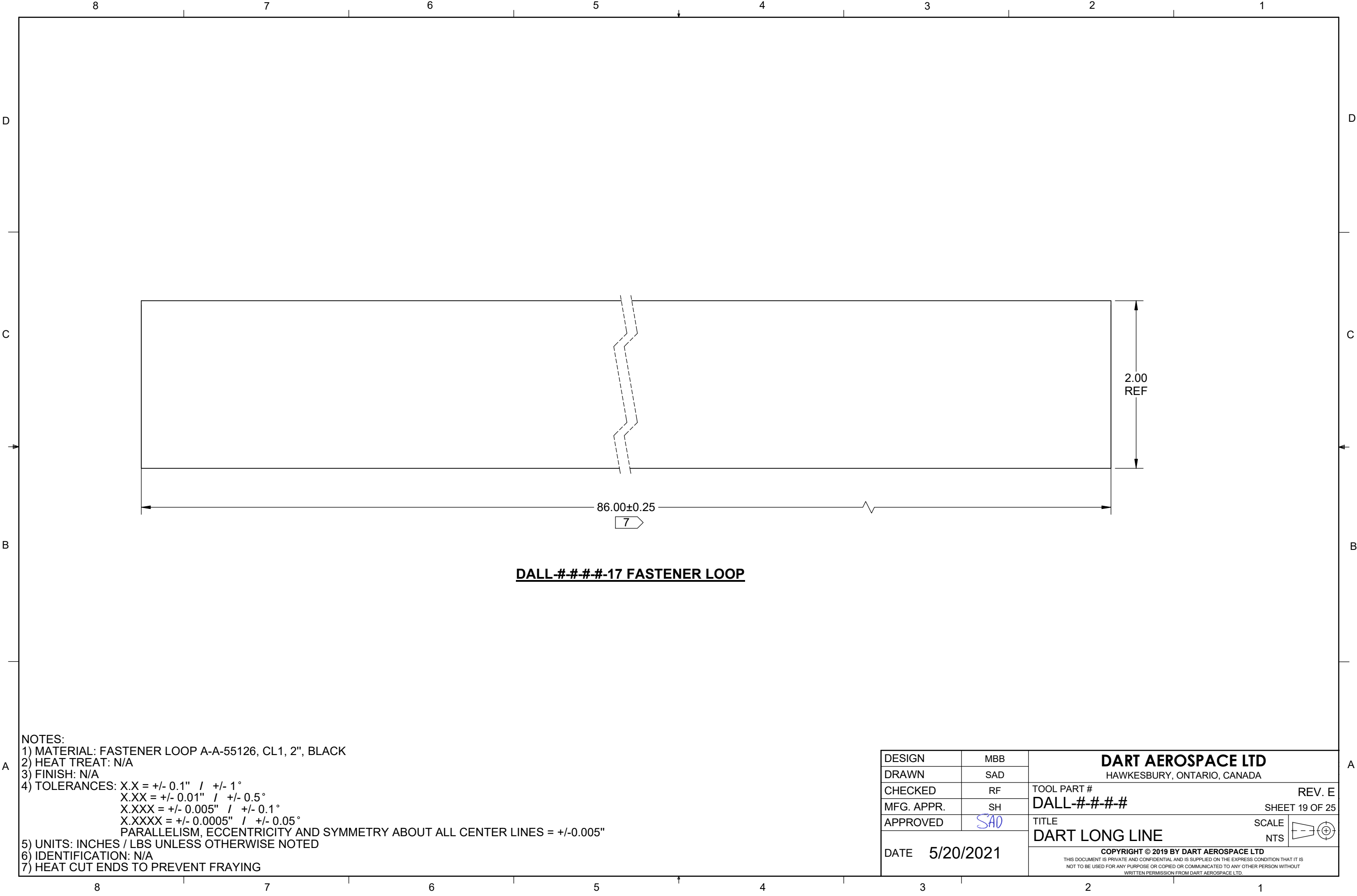


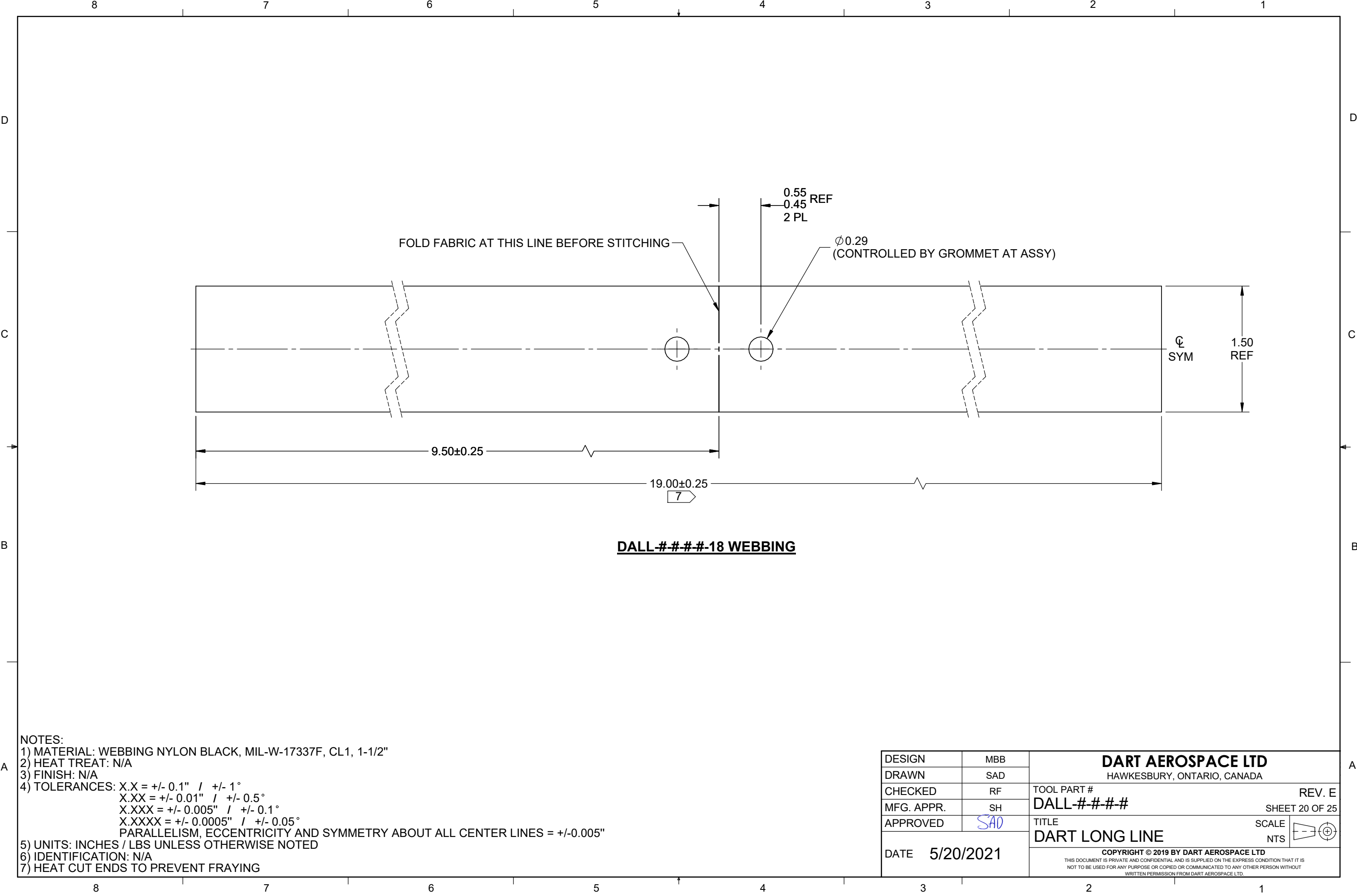








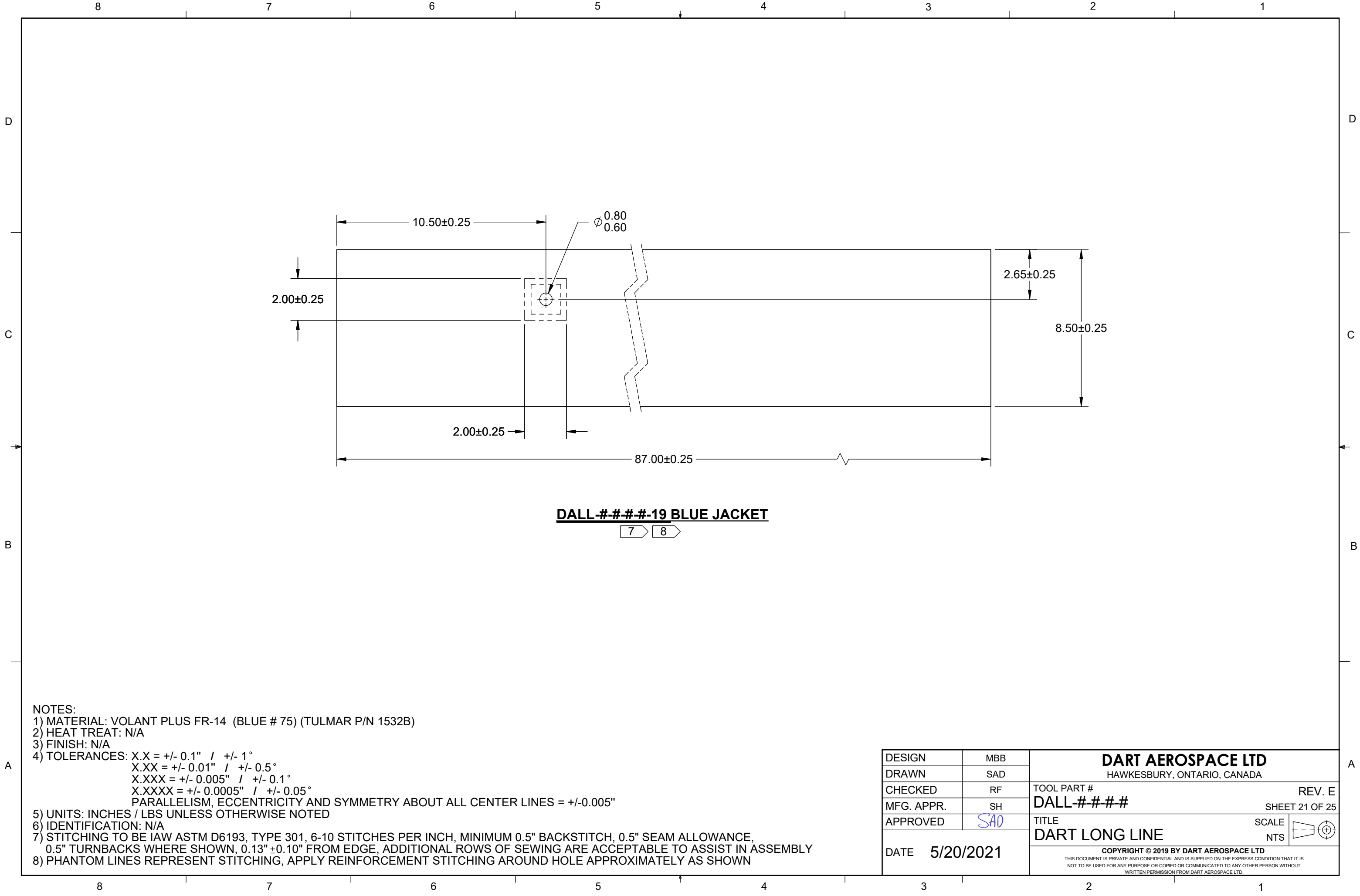


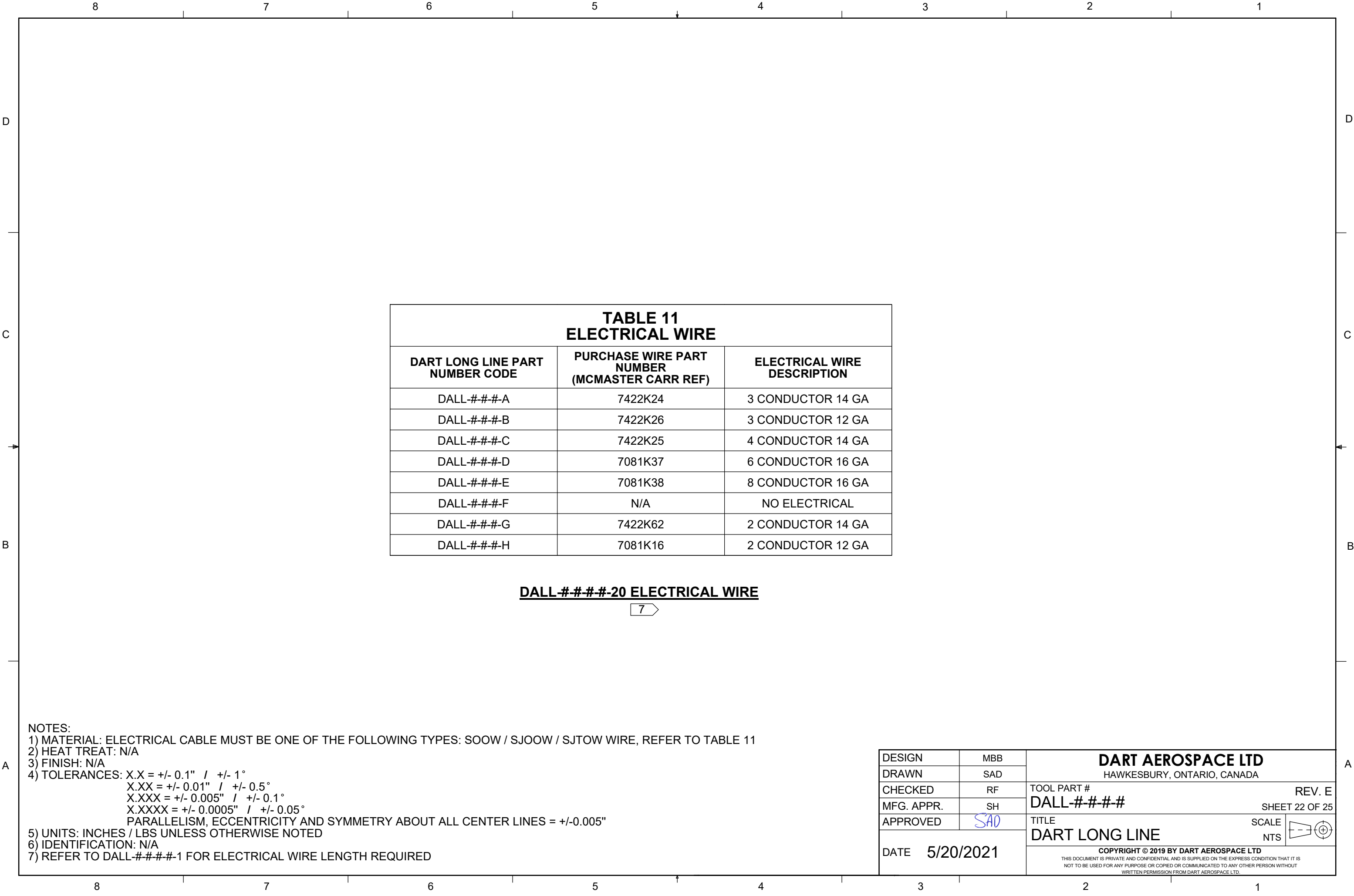


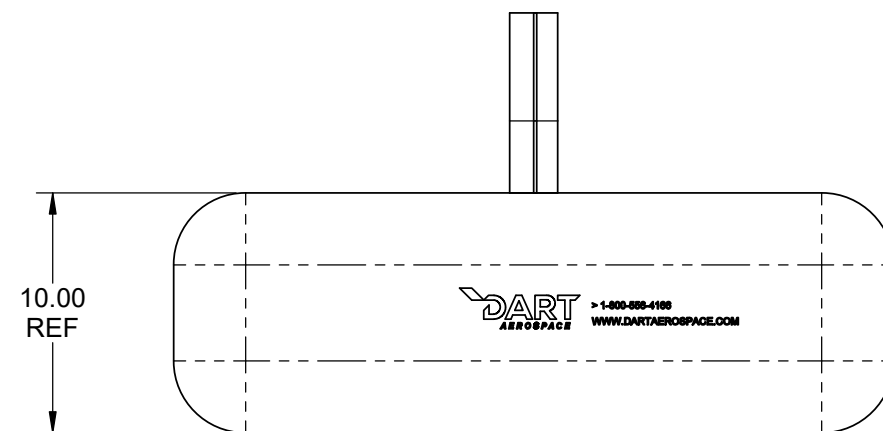
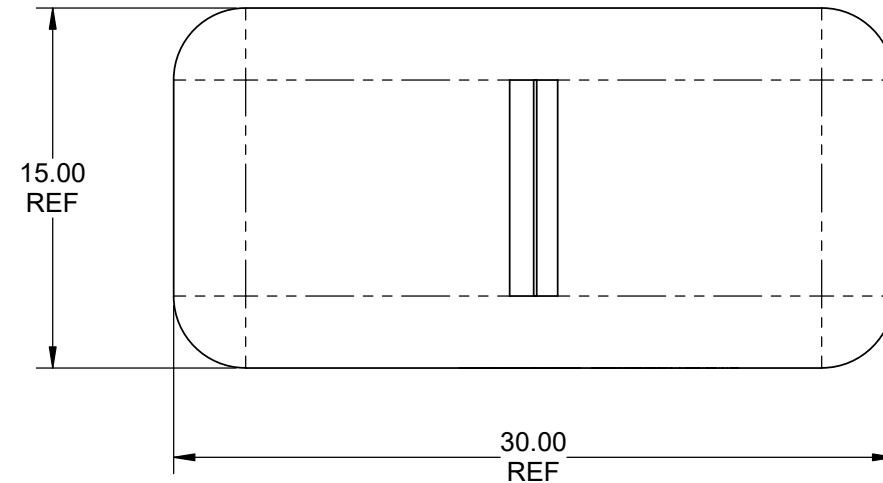
NOTES:  
1) MATERIAL: WEBBING NYLON BLACK, MIL-W-17337F, CL1, 1-1/2"  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) IDENTIFICATION: N/A  
7) HEAT CUT ENDS TO PREVENT FRAYING

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 20 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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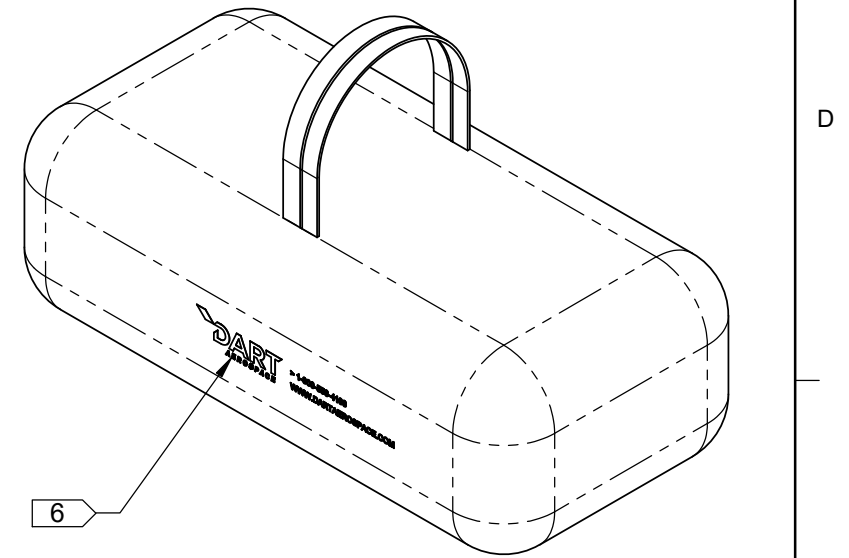








**DALL-#-#-#-21 DART AEROSPACE BAG**



NOTES:

- NOTES:
- 1) MATERIAL: 75-100 LITRE DUFFEL BAG, LOCAL PURCHASE OR FABRICATED
  - 2) HEAT TREAT: N/A
  - 3) FINISH: N/A
  - 4) TOLERANCES: X.X = +/- 0.1" / +/- 1°

$$X.XX = \pm 0.01'' \quad / \quad \pm 0.5^\circ$$


X.XXX = +/- 0.005" / +/- 0.1°

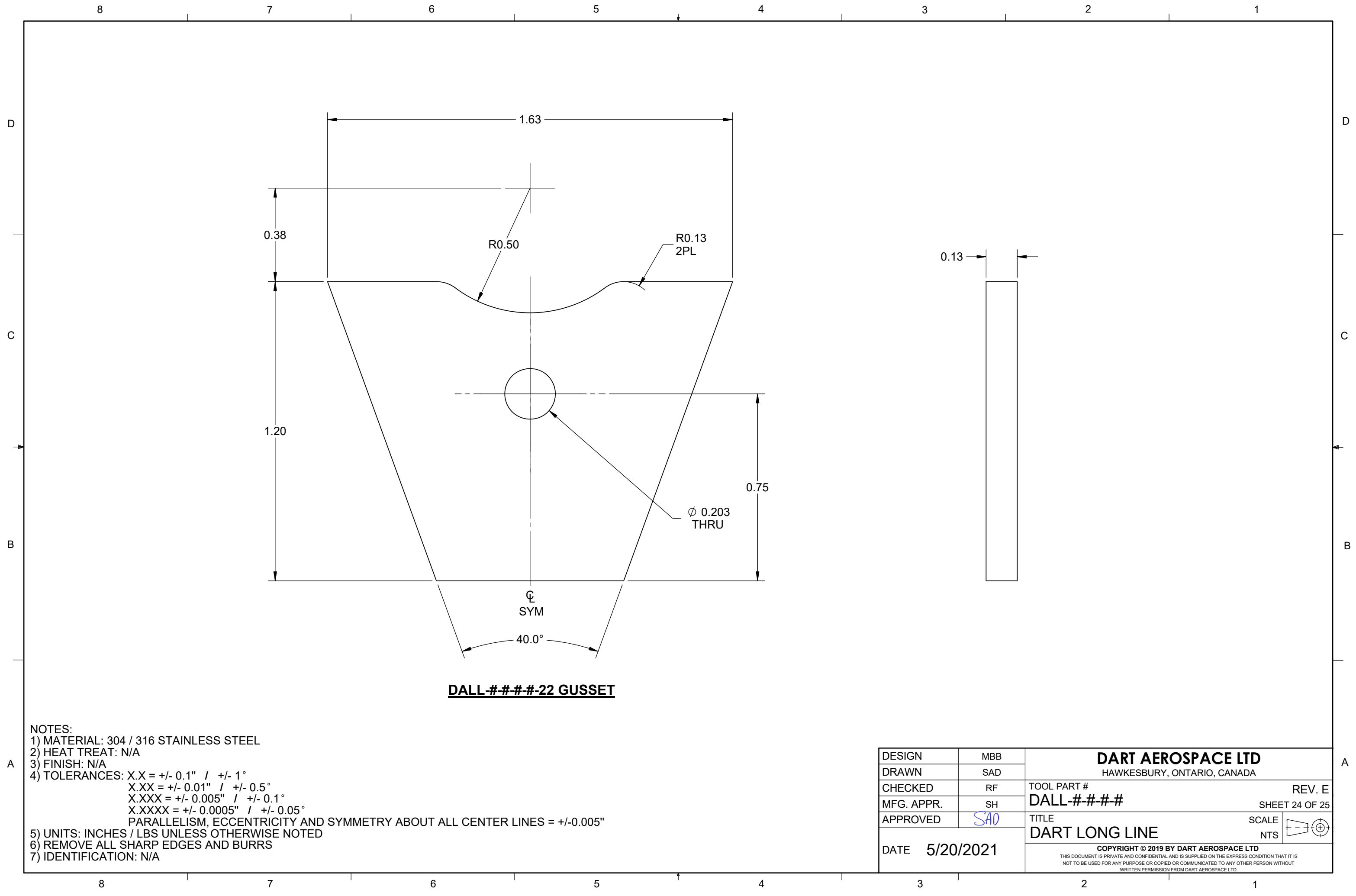
X.XXXX = +/- 0.0005" / +/- 0.05°

PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES =  $\pm 0.005$ "

- 5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED

- 6) IDENTIFICATION: INK STAMP OR STITCH ON DART LOGO AND CONTACT INFORMATION

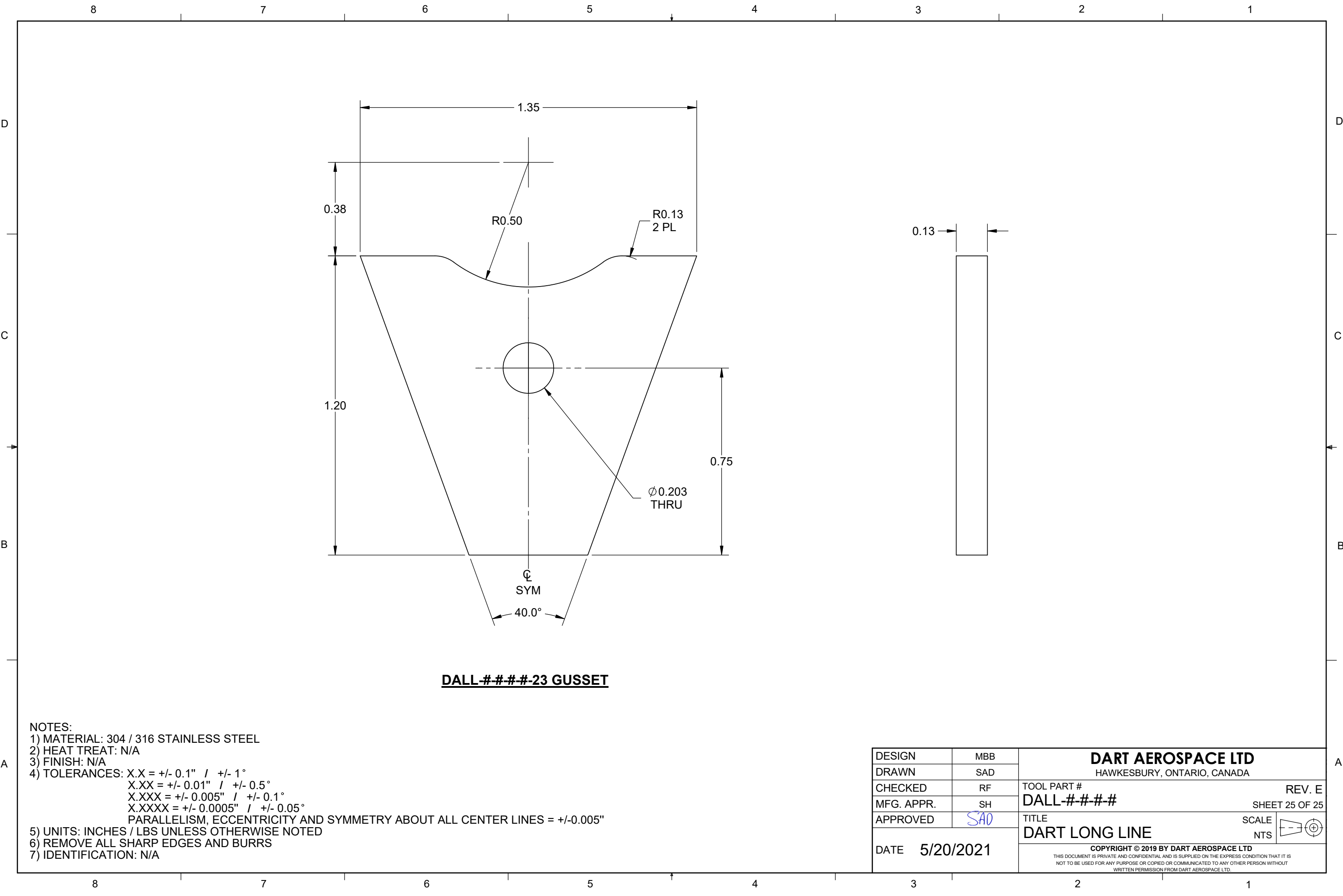
DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	DALL-#-#-#-#	SHEET 23 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		DART LONG LINE	NTS 
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**DALL-#-#-#-22 GUSSET**

NOTES:  
1) MATERIAL: 304 / 316 STAINLESS STEEL  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) REMOVE ALL SHARP EDGES AND BURRS  
7) IDENTIFICATION: N/A

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 24 OF 25
APPROVED	<i>SAD</i>	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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**DALL-#-#-#-23 GUSSET**

NOTES:  
1) MATERIAL: 304 / 316 STAINLESS STEEL  
2) HEAT TREAT: N/A  
3) FINISH: N/A  
4) TOLERANCES: X.X = +/- 0.1" / +/- 1°  
X.XX = +/- 0.01" / +/- 0.5°  
X.XXX = +/- 0.005" / +/- 0.1°  
X.XXXX = +/- 0.0005" / +/- 0.05°  
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/-0.005"  
5) UNITS: INCHES / LBS UNLESS OTHERWISE NOTED  
6) REMOVE ALL SHARP EDGES AND BURRS  
7) IDENTIFICATION: N/A

DESIGN	MBB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	RF	TOOL PART #	REV. E
MFG. APPR.	SH	<b>DALL-#-#-#</b>	SHEET 25 OF 25
APPROVED	SAD	TITLE	SCALE
DATE 5/20/2021		<b>DART LONG LINE</b>	NTS
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